

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1. (currently amended) A method for reducing emissions of at least a cylinder of an multi-cylinder internal combustion engine with ~~electromechanically actuated~~ adjustable valves timing, the method comprising:
~~processing a signal indicative of a request to stop said engine;~~
adjusting a valve opening position of ~~at least~~ said at least a cylinder based on ~~a said processed signal request to stop said engine;~~ and
operating said at least a cylinder for at least one intake stroke of said at least a cylinder after said valve opening position adjustment.
2. (original) The method of Claim 1 wherein said valve is an intake valve.
3. (original) The method of Claim 2 wherein said intake valve opening position is between 30 and 180 crank angle degrees after top-dead-center of the intake stroke of said cylinder.
4. (original) The method of Claim 1 wherein said valve is an exhaust valve.
5. (original) The method of Claim 4 wherein said exhaust valve opening position is between 0 and 120 crank angle degrees after top-dead-center of the exhaust stroke of said cylinder.

6. (~~original~~currently amended) The method of Claim 1 further comprising wherein adjusting spark timing is adjusted based on said ~~processed~~ signal request.
7. (currently amended) A method for reducing emissions of at least a cylinder of an multi-cylinder internal combustion engine with ~~electromechanically actuated~~adjustable valves timing, the method comprising:
 - ~~processing a signal indicative of a request to stop said engine;~~
 - adjusting a valve opening position of said at least a cylinder based on said ~~processed~~ signal request to stop said engine;
 - adjusting a valve closing position of said at least a cylinder based on said adjusted valve opening position;
 - and
 - operating said at least a cylinder for at least one intake stroke of said at least a cylinder after said valve opening and said valve closing position adjustments.
8. (original) The method of Claim 7 wherein said valve is an intake valve.
9. (original) The method of Claim 8 wherein said intake valve opening position is between 30 and 180 crank angle degrees after top-dead-center of the intake stroke of said cylinder.
10. (original) The method of Claim 7 wherein said valve is an exhaust valve.
11. (original) The method of Claim 10 wherein said exhaust valve

opening position is between 0 and 120 crank angle degrees after top-dead-center of the exhaust stroke of said cylinder.

12. (currently amended) The method of Claim 7 further comprising wherein adjusting spark timing is adjusted based on said processed signal request.
13. (currently amended) A method for reducing emissions of at least a cylinder of an multi-cylinder internal combustion engine with adjustableelectromechanically actuated valves timing, the method comprising:
 - ~~processing a signal to stop said engine;~~
 - adjusting a valve opening position of at least a cylinder based on asaid requestprocessed signalto stop said engine;
 - adjusting fuel injected into said at least a cylinder to produce a lean mixture in said at least a cylinder; and
 - operating said at least a cylinder for at least one intake stroke of said at least a cylinder after said valve opening position adjustment and said fuel adjustment.
14. (original) The method of Claim 13 wherein said valve is an intake valve.
15. (original) The method of Claim 14 wherein said intake valve opening position is between 30 and 180 crank angle degrees after top-dead-center of the intake stroke of said cylinder.
16. (original) The method of Claim 13 wherein said valve is an exhaust valve.

17. (currently amended) The method of Claim 13 further comprising ~~wherein adjusting spark timing is adjusted~~ based on said ~~request processed signal~~.
18. (currently amended) A method for reducing emissions of at least a cylinder of a multi-cylinder internal combustion engine with ~~electromechanically actuated adjustable valves~~ timing, the method comprising:
 ~~processing a signal to stop said engine;~~
 adjusting a valve opening position of said at least a cylinder based on ~~a said request processed signal to stop~~ said engine and an estimated fuel puddle mass; and
 operating said at least a cylinder for at least one intake stroke of said at least a cylinder after said valve opening position adjustment and said fuel adjustment.
19. (currently amended) The method of Claim 18 wherein further comprising adjusting spark timing ~~is adjusted~~ based on said ~~request processed signal~~.
20. (original) The method of Claim 18 wherein said valve is an intake valve.
21. (currently amended) A computer readable storage medium having stored data representing instructions executable by a computer to control an internal combustion engine having adjustable to ~~control electromechanically actuated valves timing~~, the storage medium comprising:
 ~~instructions for processing a signal indicative of a request to stop said engine;~~
 instructions for adjusting a valve opening

position of at least a cylinder based on ~~said~~
~~request~~processed signal to stop said engine; and
instructions for operating said at least a cylinder for
at least one intake stroke of said at least a cylinder
after said valve opening position adjustment.

22. (original) A computer readable storage medium having stored data representing instructions executable by a computer to control an internal combustion engine, the storage medium comprising:
- instructions for retarding ignition timing
during an engine shut-down on at least one of a group of final combustion events during the shut-down to increase exhaust temperature thereby improving emissions on a subsequent engine re-start.
23. (currently amended) The computer readable storage medium of Claim 22 further comprising instructions for adjusting a valve amount of an ~~electromechanical valve of the engine~~ during said engine shut-down on at least one of said group of final combustion events during the shut-down to increase exhaust temperature thereby improving emissions on said subsequent engine re-start.
24. (currently amended) The computer readable storage medium of Claim 23 wherein said ~~electromechanical~~ adjusting a valve amount of the engine operates to adjust exhaust valve timing.
25. (currently amended) The computer readable storage medium of Claim 23 wherein said ~~electromechanical~~ adjusting a valve amount of the engine operates to adjust intake valve timing.

26. (currently amended) The computer readable storage medium of Claim 23 wherein said ~~electromechanical~~adjusting a valve amount of the engine operates to adjust exhaust valve lift.
27. (currently amended) The computer readable storage medium of Claim 23 wherein said ~~electromechanical~~adjusting a valve amount of the engine operates to adjust exhaust valve opening duration.
28. (currently amended) The computer readable storage medium of Claim 23 wherein said ~~electromechanical~~adjusting a valve amount of the engine operates to adjust exhaust closing timing.
29. (original) The computer readable storage medium of Claim 22 wherein said at least one of said group of final combustion events includes a final cylinder to perform combustion.
30. (original) The computer readable storage medium of Claim 22 wherein said at least one of said group of final combustion events includes a final two cylinders to perform combustion.
31. (new) The method of Claim 1 wherein said valve is an electrically actuated valve.
32. (new) The method of Claim 31 wherein said electrically actuated valve is an electromechanical valve.
33. (new) The method of Claim 7 wherein said valve is an electrically actuated valve.
34. (new) The method of Claim 33 wherein said electrically actuated valve is an electromechanical valve.
35. (new) The method of Claim 13 wherein said valve is an electromechanical valve.

- 36. (new) The method of Claim 18 wherein said valve is an electromechanical valve.
- 37. (new) The method of Claim 21 wherein said valve is an electromechanical valve.
- 38. (new) The method of Claim 23 wherein said valve is an electromechanical valve.
- 39. (new) A method for reducing emissions of at least a cylinder of a multi-cylinder internal combustion engine with adjustable valve timing, the method comprising:

adjusting a valve opening position of said cylinder based on a request to deactivate said cylinder; and
operating said cylinder for at least one intake stroke of said cylinder after said valve opening position adjustment.

- 40. (new) The method of Claim 39 wherein said cylinder is a hybrid-electric vehicle.
- 41. (new) The method of Claim 39 wherein said valve is an exhaust valve.
- 42. (new) The method of Claim 39 wherein said valve is an intake valve.
- 43. (new) The method of Claim 39 wherein said valve is an electrically actuated valve.
- 44. (new) The method of Claim 43 wherein said valve is an electromechanical valve.